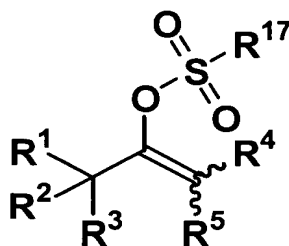


AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

Listing of Claims:

1. (Original) A process for producing a vinyl perfluoroalkanesulfonate derivative represented by general formula (IV):



(IV)

(wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> may be the same or different and each represents a hydrogen atom, substituted or unsubstituted lower alkyl, substituted or unsubstituted lower alkoxy, substituted or unsubstituted lower alkoxycarbonyl, substituted or unsubstituted lower alkanoyl, substituted or unsubstituted lower alkanoyloxy, substituted or unsubstituted lower alkenyl, substituted or unsubstituted lower alkynyl, substituted or unsubstituted lower alkadienyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted cycloalkenyl, substituted or unsubstituted cycloalkynyl, substituted or unsubstituted cycloalkadienyl, substituted or unsubstituted aralkyl, substituted or unsubstituted aralkyloxy, substituted or unsubstituted aralkyloxycarbonyl, substituted or unsubstituted aryl, substituted or unsubstituted aryloxy, substituted or unsubstituted aryloxycarbonyl, a substituted or unsubstituted heterocyclic group, nitro, nitroso, halogen, carboxy, -S(O)<sub>n</sub>R<sup>6</sup> (wherein

n represents 0 or 1, and  $R^6$  represents substituted or unsubstituted lower alkyl, substituted or unsubstituted aralkyl, or substituted or unsubstituted aryl group),  $-P(O)_mR^{6a}R^{6b}$  (wherein m represents 0 or 1, and  $R^{6a}$  and  $R^{6b}$  may be the same or different and each has the same meaning as  $R^6$  defined above), or  $-NR^7R^8$  [wherein  $R^7$  and  $R^8$  may be the same or different and each represents a hydrogen atom, substituted or unsubstituted lower alkyl, substituted or unsubstituted aralkyl, substituted or unsubstituted aryl, substituted or unsubstituted lower alkoxy carbonyl, substituted or unsubstituted lower alkanoyl, substituted or unsubstituted lower alkanoyloxy,  $-CONR^{6c}R^{6d}$  (wherein  $R^{6c}$  and  $R^{6d}$  may be the same or different and each has the same meaning as  $R^6$  defined above), or  $-SO_2R^{6e}$  (wherein  $R^{6e}$  has the same meaning as  $R^6$  defined above)];

$R^1$  and  $R^2$  are combined together with the adjacent carbon atom thereto to form  $R^9$  (wherein  $R^9$  represents substituted or unsubstituted cycloalkyl, substituted or unsubstituted cycloalkenyl, substituted or unsubstituted cycloalkynyl, substituted or unsubstituted cycloalkadienyl, or a substituted or unsubstituted heterocyclic group);  $R^4$  and  $R^5$  are combined together with the adjacent carbon atom thereto to form  $R^{10}$  (wherein  $R^{10}$  has the same meaning as  $R^9$  defined above);

$R^1$ ,  $R^2$  and  $R^3$  are combined together with the adjacent carbon atom thereto to form  $R^{11}$  (wherein  $R^{11}$  represents substituted or unsubstituted aryl, or a substituted or unsubstituted heterocyclic group);

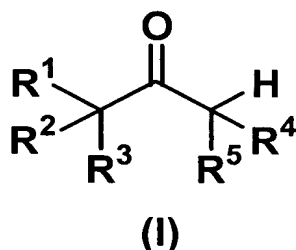
$R^1$  and  $R^4$  are combined together with the two carbon atoms which are adjacent to  $R^1$  or  $R^4$ , respectively, and the carbon atom between these two carbon atoms to

form a substituted or unsubstituted carbocycle, or a substituted or unsubstituted aliphatic heterocycle; or

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, a substituted or unsubstituted aliphatic heterocycle, or a substituted or unsubstituted condensed ring, and

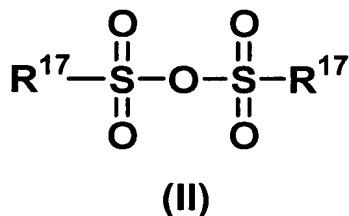
R<sup>17</sup> represents a fluorine atom or perfluoroalkyl)

which comprises reacting a carbonyl compound represented by general formula (I):



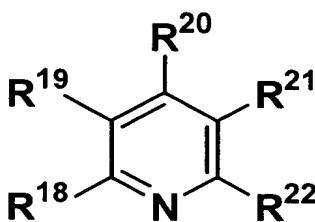
(wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> have the same meanings as defined above, respectively)

with a perfluoroalkanesulfonic anhydride represented by general formula (II):



(wherein R<sup>17</sup> has the same meaning as defined above)

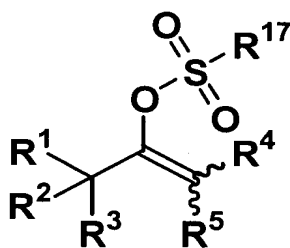
in the presence of a pyridine derivative represented by general formula (III) in an amount of 0.1 to 1.0 equivalent to the perfluoroalkanesulfonic anhydride:



(III)

(wherein R<sup>18</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup> and R<sup>22</sup> may be the same or different and each represents a hydrogen atom, halogen, substituted or unsubstituted lower alkyl, or substituted or unsubstituted lower alkoxy; with the proviso that when R<sup>18</sup> and R<sup>22</sup> are *tert*-butyl, and R<sup>19</sup> and R<sup>21</sup> are hydrogen atoms, R<sup>20</sup> is not methyl).

2. (Currently Amended) A process for producing a vinyl perfluoroalkanesulfonate derivative represented by general formula (IV):



(IV)

(wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup> and ~~R<sup>17</sup>~~ have the same meanings as defined above, ~~respectively~~) may be the same or different and each represents a hydrogen atom, substituted or unsubstituted lower alkyl, substituted or unsubstituted lower alkoxy, substituted or unsubstituted lower alkoxy carbonyl, substituted or unsubstituted lower alkanoyl, substituted or unsubstituted lower alkanoyloxy, substituted or unsubstituted lower alkenyl, substituted or unsubstituted lower alkynyl, substituted or unsubstituted lower alkadienyl, substituted or unsubstituted cycloalkyl,

substituted or unsubstituted cycloalkenyl, substituted or unsubstituted cycloalkynyl,  
substituted or unsubstituted cycloalkadienyl, substituted or unsubstituted aralkyl,  
substituted or unsubstituted aralkyloxy, substituted or unsubstituted  
aralkyloxycarbonyl, substituted or unsubstituted aryl, substituted or unsubstituted  
aryloxy, substituted or unsubstituted aryloxycarbonyl, a substituted or unsubstituted  
heterocyclic group, nitro, nitroso, halogen, carboxy,  $-\text{S}(\text{O})_n\text{R}^6$  (wherein n represents  
0 or 1, and  $\text{R}^6$  represents substituted or unsubstituted lower alkyl, substituted or  
unsubstituted aralkyl, or substituted or unsubstituted aryl group),  
 $-\text{P}(\text{O})_m\text{R}^{6a}\text{R}^{6b}$  (wherein m represents 0 or 1, and  $\text{R}^{6a}$  and  $\text{R}^{6b}$  may be the same or  
different and each has the same meaning as  $\text{R}^6$  defined above), or  $-\text{NR}^7\text{R}^8$  [wherein  
 $\text{R}^7$  and  $\text{R}^8$  may be the same or different and each represents a hydrogen atom,  
substituted or unsubstituted lower alkyl, substituted or unsubstituted aralkyl,  
substituted or unsubstituted aryl, substituted or unsubstituted lower alkoxy, carbonyl,  
substituted or unsubstituted lower alkanoyl, substituted or unsubstituted lower  
alkanoyloxy,  $-\text{CONR}^{6c}\text{R}^{6d}$  (wherein  $\text{R}^{6c}$  and  $\text{R}^{6d}$  may be the same or different and  
each has the same meaning as  $\text{R}^6$  defined above), or  $-\text{SO}_2\text{R}^{6e}$  (wherein  $\text{R}^{6e}$  has  
the same meaning as  $\text{R}^6$  defined above)];  
 $\text{R}^1$  and  $\text{R}^2$  are combined together with the adjacent carbon atom thereto to form  $\text{R}^9$   
(wherein  $\text{R}^9$  represents substituted or unsubstituted cycloalkyl, substituted or  
unsubstituted cycloalkenyl, substituted or unsubstituted cycloalkynyl, substituted or  
unsubstituted cycloalkadienyl, or a substituted or unsubstituted heterocyclic group);  
 $\text{R}^4$  and  $\text{R}^5$  are combined together with the adjacent carbon atom thereto to form  $\text{R}^{10}$   
(wherein  $\text{R}^{10}$  has the same meaning as  $\text{R}^9$  defined above);

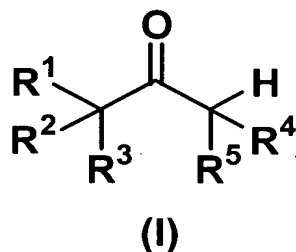
R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are combined together with the adjacent carbon atom thereto to form R<sup>11</sup> (wherein R<sup>11</sup> represents substituted or unsubstituted aryl, or a substituted or unsubstituted heterocyclic group);

R<sup>1</sup> and R<sup>4</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup> or R<sup>4</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, or a substituted or unsubstituted aliphatic heterocycle; or

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, a substituted or unsubstituted aliphatic heterocycle, or a substituted or unsubstituted condensed ring, and

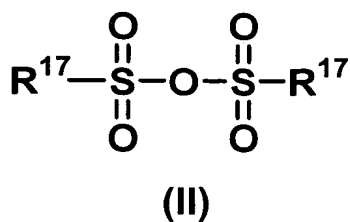
R<sup>17</sup> represents a fluorine atom or perfluoroalkyl)

which comprises adding a carbonyl compound represented by general formula (I):



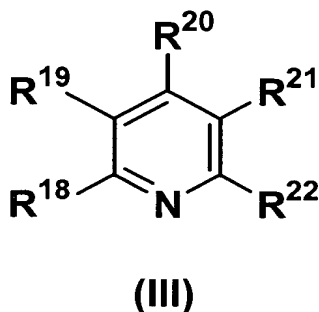
(wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> have the same meanings as defined above, respectively)

to a suspension or a solution containing a perfluoroalkanesulfonic anhydride represented by general formula (II):



(wherein R<sup>17</sup> has the same meaning as defined above)

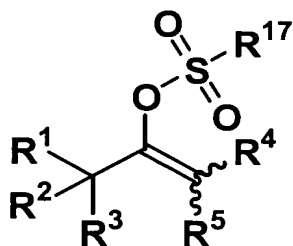
and a pyridine derivative represented by general formula (III) in an amount of 0.1 to 1.0 equivalent to the perfluoroalkanesulfonic anhydride:



(wherein R<sup>18</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup> and R<sup>22</sup> have the same meanings as defined above, respectively) may be the same or different and each represents a hydrogen atom, halogen, substituted or unsubstituted lower alkyl, or substituted or unsubstituted lower alkoxy; with the proviso that when R<sup>18</sup> and R<sup>22</sup> are *tert*-butyl, and R<sup>19</sup> and R<sup>21</sup> are hydrogen atoms, R<sup>20</sup> is not methyl), and wherein

when the content of the pyridine derivative represented by general formula (III) in the suspension or the solution is 1.0 equivalent to the perfluoroalkanesulfonic anhydride represented by general formula (II), the perfluoroalkanesulfonic anhydride represented by general formula (II), water, an acid, or an acid anhydride is further added for the reaction.

3. (Currently Amended) A process for producing a vinyl perfluoroalkanesulfonate derivative represented by general formula (IV):



(IV)

(wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, and R<sup>5</sup> ~~and R<sup>17</sup>~~ have the same meanings as defined above, respectively) may be the same or different and each represents a hydrogen atom, substituted or unsubstituted lower alkyl, substituted or unsubstituted lower alkoxy, substituted or unsubstituted lower alkoxycarbonyl, substituted or unsubstituted lower alkanoyl, substituted or unsubstituted lower alkanoyloxy, substituted or unsubstituted lower alkenyl, substituted or unsubstituted lower alkynyl, substituted or unsubstituted lower alkadienyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted cycloalkenyl, substituted or unsubstituted cycloalkynyl, substituted or unsubstituted cycloalkadienyl, substituted or unsubstituted aralkyl, substituted or unsubstituted aralkyloxy, substituted or unsubstituted aralkyloxycarbonyl, substituted or unsubstituted aryl, substituted or unsubstituted aryloxy, substituted or unsubstituted aryloxycarbonyl, a substituted or unsubstituted heterocyclic group, nitro, nitroso, halogen, carboxy, -S(O)<sub>n</sub>R<sup>6</sup> (wherein n represents 0 or 1, and R<sup>6</sup> represents substituted or unsubstituted lower alkyl, substituted or unsubstituted aralkyl, or substituted or unsubstituted aryl group), -P(O)<sub>m</sub>R<sup>6a</sup>R<sup>6b</sup> (wherein m represents 0 or 1, and R<sup>6a</sup> and R<sup>6b</sup> may be the same or different and each has the same meaning as R<sup>6</sup> defined above), or -NR<sup>7</sup>R<sup>8</sup> [wherein R<sup>7</sup> and R<sup>8</sup> may be the same or different and each represents a hydrogen atom, substituted or unsubstituted lower alkyl, substituted or unsubstituted aralkyl,



substituted or unsubstituted aryl, substituted or unsubstituted lower alkoxycarbonyl, substituted or unsubstituted lower alkanoyl, substituted or unsubstituted lower alkanoyloxy, -CONR<sup>6c</sup>R<sup>6d</sup> (wherein R<sup>6c</sup> and R<sup>6d</sup> may be the same or different and each has the same meaning as R<sup>6</sup> defined above), or -SO<sub>2</sub>R<sup>6e</sup> (wherein R<sup>6e</sup> has the same meaning as R<sup>6</sup> defined above)];

R<sup>1</sup> and R<sup>2</sup> are combined together with the adjacent carbon atom thereto to form R<sup>9</sup> (wherein R<sup>9</sup> represents substituted or unsubstituted cycloalkyl, substituted or unsubstituted cycloalkenyl, substituted or unsubstituted cycloalkynyl, substituted or unsubstituted cycloalkadienyl, or a substituted or unsubstituted heterocyclic group);

R<sup>4</sup> and R<sup>5</sup> are combined together with the adjacent carbon atom thereto to form R<sup>10</sup> (wherein R<sup>10</sup> has the same meaning as R<sup>9</sup> defined above);

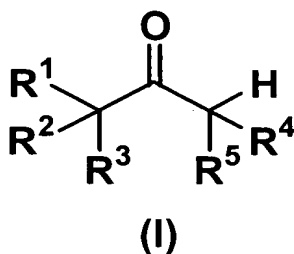
R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are combined together with the adjacent carbon atom thereto to form R<sup>11</sup> (wherein R<sup>11</sup> represents substituted or unsubstituted aryl, or a substituted or unsubstituted heterocyclic group);

R<sup>1</sup> and R<sup>4</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup> or R<sup>4</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, or a substituted or unsubstituted aliphatic heterocycle; or

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, a substituted or unsubstituted aliphatic heterocycle, or a substituted or unsubstituted condensed ring, and

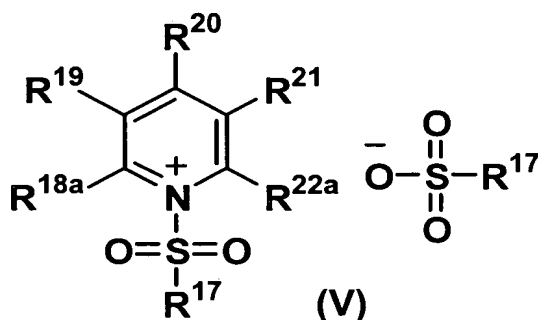
R<sup>17</sup> represents a fluorine atom or perfluoroalkyl)

which comprises reacting a carbonyl compound represented by general formula (I):



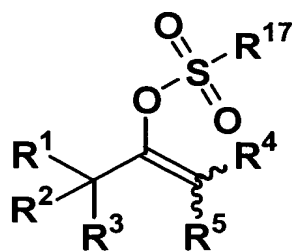
(wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> have the same meanings as defined above, respectively)

with a 1-(perfluoroalkanesulfonyl)pyridinium perfluoroalkanesulfonate represented by general formula (V):



(wherein R<sup>19</sup>, R<sup>20</sup> and R<sup>21</sup> ~~have the same meanings as defined above,~~  
respectively may be the same or different and each represents a hydrogen atom,  
halogen, substituted or unsubstituted lower alkyl, or substituted or unsubstituted  
lower alkoxy, and R<sup>18a</sup> and R<sup>22a</sup> may be the same or different and each represents  
 a hydrogen atom, methyl, ethyl, *n*-propyl, isopropyl, methoxy, ethoxy, *n*-propyloxy, or  
 isopropyloxy).

4. (Currently Amended) A process for producing a vinyl  
 perfluoroalkanesulfonate derivative represented by general formula (IV):



(IV)

(wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, and R<sup>5</sup> and R<sup>17</sup> have the same meanings as defined above, respectively) may be the same or different and each represents a hydrogen atom, substituted or unsubstituted lower alkyl, substituted or unsubstituted lower alkoxy, substituted or unsubstituted lower alkoxy carbonyl, substituted or unsubstituted lower alkanoyl, substituted or unsubstituted lower alkanoyloxy, substituted or unsubstituted lower alkenyl, substituted or unsubstituted lower alkynyl, substituted or unsubstituted lower alkadienyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted cycloalkenyl, substituted or unsubstituted cycloalkynyl, substituted or unsubstituted cycloalkadienyl, substituted or unsubstituted aralkyl, substituted or unsubstituted aralkyloxy, substituted or unsubstituted aralkyloxycarbonyl, substituted or unsubstituted aryl, substituted or unsubstituted aryloxy, substituted or unsubstituted aryloxycarbonyl, a substituted or unsubstituted heterocyclic group, nitro, nitroso, halogen, carboxy, -S(O)<sub>n</sub>R<sup>6</sup> (wherein n represents 0 or 1, and R<sup>6</sup> represents substituted or unsubstituted lower alkyl, substituted or unsubstituted aralkyl, or substituted or unsubstituted aryl group), -P(O)<sub>m</sub>R<sup>6a</sup>R<sup>6b</sup> (wherein m represents 0 or 1, and R<sup>6a</sup> and R<sup>6b</sup> may be the same or different and each has the same meaning as R<sup>6</sup> defined above), or -NR<sup>7</sup>R<sup>8</sup> [wherein R<sup>7</sup> and R<sup>8</sup> may be the same or different and each represents a hydrogen atom, substituted or unsubstituted lower alkyl, substituted or unsubstituted aralkyl,

substituted or unsubstituted aryl, substituted or unsubstituted lower alkoxy carbonyl, substituted or unsubstituted lower alkanoyl, substituted or unsubstituted lower alkanoyloxy, -CONR<sup>6c</sup>R<sup>6d</sup> (wherein R<sup>6c</sup> and R<sup>6d</sup> may be the same or different and each has the same meaning as R<sup>6</sup> defined above), or -SO<sub>2</sub>R<sup>6e</sup> (wherein R<sup>6e</sup> has the same meaning as R<sup>6</sup> defined above)];

R<sup>1</sup> and R<sup>2</sup> are combined together with the adjacent carbon atom thereto to form R<sup>9</sup> (wherein R<sup>9</sup> represents substituted or unsubstituted cycloalkyl, substituted or unsubstituted cycloalkenyl, substituted or unsubstituted cycloalkynyl, substituted or unsubstituted cycloalkadienyl, or a substituted or unsubstituted heterocyclic group);  
R<sup>4</sup> and R<sup>5</sup> are combined together with the adjacent carbon atom thereto to form R<sup>10</sup> (wherein R<sup>10</sup> has the same meaning as R<sup>9</sup> defined above);

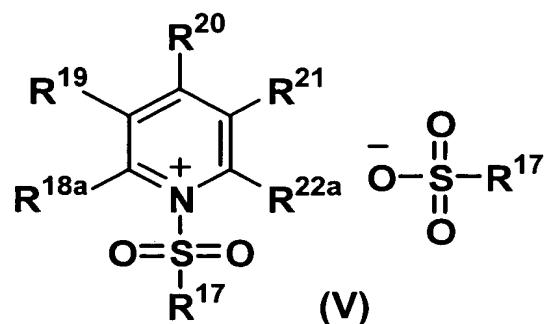
R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are combined together with the adjacent carbon atom thereto to form R<sup>11</sup> (wherein R<sup>11</sup> represents substituted or unsubstituted aryl, or a substituted or unsubstituted heterocyclic group);

R<sup>1</sup> and R<sup>4</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup> or R<sup>4</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, or a substituted or unsubstituted aliphatic heterocycle; or

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, a substituted or unsubstituted aliphatic heterocycle, or a substituted or unsubstituted condensed ring,  
and

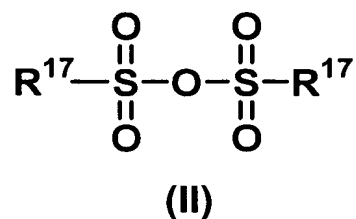
R<sup>17</sup> represents a fluorine atom or perfluoroalkyl)

which comprises preparing a 1-(perfluoroalkanesulfonyl)pyridinium  
perfluoroalkanesulfonate represented by general formula (V):



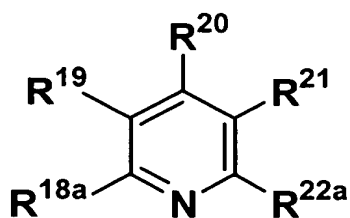
(wherein  $R^{18a}$ ,  $R^{19}$ ,  $R^{20}$ ,  $R^{21}$  and  $R^{22a}$  have the same meanings as defined above, respectively) (wherein  $R^{19}$ ,  $R^{20}$  and  $R^{21}$  have the same meanings as defined above, respectively may be the same or different and each represents a hydrogen atom, halogen, substituted or unsubstituted lower alkyl, or substituted or unsubstituted lower alkoxy, and  $R^{18a}$  and  $R^{22a}$  may be the same or different and each represents a hydrogen atom, methyl, ethyl, *n*-propyl, isopropyl, methoxy, ethoxy, *n*-propyloxy, or isopropyloxy)

from a perfluoroalkanesulfonic anhydride represented by general formula (II):



(wherein  $R^{17}$  has the same meanings as defined above)

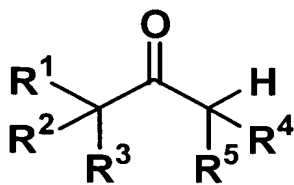
and a pyridine derivative represented by general formula (IIIa):



(IIIa)

(wherein R<sup>18a</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup> and R<sup>22a</sup> have the same meanings as defined above, respectively);

and then reacting the resulting 1-(perfluoroalkanesulfonyl)pyridinium perfluoroalkanesulfonate with a carbonyl compound represented by general formula (I):



(I)

(wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, and R<sup>5</sup> have the same meanings as defined above, respectively).

5. (Currently Amended) The process according to claim 1-~~or~~2, wherein R<sup>18</sup> and R<sup>22</sup> may be the same or different and each represents a hydrogen atom, methyl, ethyl, *n*-propyl, isopropyl, methoxy, ethoxy, *n*-propyloxy, or isopropyloxy.

6. (Currently Amended) The process according to claim 1-~~or~~2, wherein R<sup>18</sup> and R<sup>22</sup> may be the same or different and each represents a hydrogen atom, halogen, or methyl.

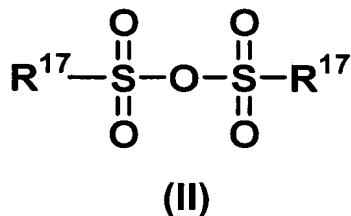
7. (Currently Amended) The process according to ~~any one of claims~~ claim 1 to 6, wherein R<sup>19</sup> and R<sup>21</sup> represent a hydrogen atom.

8. (Original) The process according to claim 7, wherein R<sup>20</sup> represents a hydrogen atom or methyl.

9. (Currently Amended) The process according to claim 1-~~or~~2, wherein R<sup>18</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup>, and R<sup>22</sup> represent a hydrogen atom.

10. (Currently Amended) The process according to claim 3-~~or~~4, wherein R<sup>18a</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup>, and R<sup>22a</sup> represent a hydrogen atom.

11. (Currently Amended) The process according to ~~any one of claims~~ claim 1 to 10, wherein the perfluoroalkanesulfonic anhydride represented by general formula (II), water, an acid, or an acid anhydride is further added during the reaction of the perfluoroalkanesulfonic anhydride represented by general formula (II):



(wherein R<sup>17</sup> has the same meaning as defined above).

12. (Currently Amended) The process according to ~~any one of claims~~  
claim 1 to 11, wherein R<sup>17</sup> represents a fluorine atom, trifluoromethyl, or nonafluoro-  
*n*-butyl.

13. (Currently Amended) The process according to ~~any one of claims~~  
claim 1 to 11, wherein R<sup>17</sup> represents a fluorine atom or trifluoromethyl.

14. (Currently Amended) The process for producing a vinyl  
perfluoroalkanesulfonate derivative according to ~~any one of claims~~ claim 1 to 13,  
wherein at least one selected from the group consisting of methylene chloride,  
toluene, chlorobenzene, trifluorotoluene, and dichlorobenzene is used as the solvent.

15. (Currently Amended) The process for producing a vinyl  
perfluoroalkanesulfonate derivative according to ~~any one of claims~~ claim 1 to 14,  
wherein R<sup>1</sup> and R<sup>4</sup> are combined together with the two carbon atoms which are  
adjacent to R<sup>1</sup> or R<sup>4</sup>, respectively, and the carbon atom between these two carbon  
atoms to form a substituted or unsubstituted carbocycle, or a substituted or  
unsubstituted aliphatic heterocycle; or R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together  
with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively,  
and the carbon atom between these two carbon atoms to form a substituted or  
unsubstituted carbocycle, a substituted or unsubstituted aliphatic heterocycle, or a  
substituted or unsubstituted condensed ring.



16. (Currently Amended) The process for producing a vinyl perfluoroalkanesulfonate derivative according to ~~any one of claims~~ claim 1 to 14, wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle.

17. (Currently Amended) The process for producing a vinyl perfluoroalkanesulfonate derivative according to ~~any one of claims~~ claim 1 to 14, wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted condensed ring.

18. (New) The process according to claim 2, wherein R<sup>18</sup> and R<sup>22</sup> may be the same or different and each represents a hydrogen atom, methyl, ethyl, *n*-propyl, isopropyl, methoxy, ethoxy, *n*-propyloxy, or isopropyloxy.

19. (New) The process according to claim 2, wherein R<sup>18</sup> and R<sup>22</sup> may be the same or different and each represents a hydrogen atom, halogen, or methyl.

20. (New) The process according to claim 2, wherein R<sup>19</sup> and R<sup>21</sup> represent a hydrogen atom.

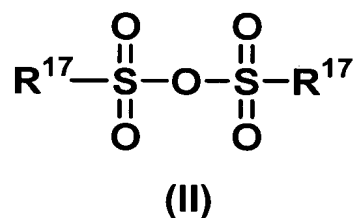
21. (New) The process according to claim 2, wherein R<sup>18</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup>, and R<sup>22</sup> represent a hydrogen atom.

22. (New) The process according to claim 3, wherein R<sup>19</sup> and R<sup>21</sup> represent a hydrogen atom.

23. (New) The process according to claim 4, wherein R<sup>19</sup> and R<sup>21</sup> represent a hydrogen atom.

24. (New) The process according to claim 4, wherein R<sup>18a</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup>, and R<sup>22a</sup> represent a hydrogen atom.

25. (New) The process according to claim 3, wherein the perfluoroalkanesulfonic anhydride represented by general formula (II), water, an acid, or an acid anhydride is further added during the reaction of the perfluoroalkanesulfonic anhydride represented by general formula (II):



(wherein R<sup>17</sup> has the same meaning as defined above).

26. (New) The process according to claim 3, wherein R<sup>17</sup> represents a fluorine atom, trifluoromethyl, or nonafluoro-*n*-butyl.

27. (New) The process according to claim 3, wherein R<sup>17</sup> represents a fluorine atom or trifluoromethyl.

28. (New) The process for producing a vinyl perfluoroalkanesulfonate derivative according to claim 3, wherein at least one selected from the group consisting of methylene chloride, toluene, chlorobenzene, trifluorotoluene, and dichlorobenzene is used as the solvent.

29. (New) The process for producing a vinyl perfluoroalkanesulfonate derivative according to claim 3, wherein R<sup>1</sup> and R<sup>4</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup> or R<sup>4</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, or a substituted or unsubstituted aliphatic heterocycle; or R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle, a substituted or unsubstituted aliphatic heterocycle, or a substituted or unsubstituted condensed ring.

30. (New) The process for producing a vinyl perfluoroalkanesulfonate derivative according to claim 3, wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted carbocycle.

31. (New) The process for producing a vinyl perfluoroalkanesulfonate derivative according to claim 3, wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are combined together with the two carbon atoms which are adjacent to R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>, respectively, and the carbon atom between these two carbon atoms to form a substituted or unsubstituted condensed ring.